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F A C T S,
TENDING TO SHOW
The Connection of the Stomach
WITH
Life, Disease, and Recovery.

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AS there is no medical theory, formed from induction, to enable us to detect what is erroneous or false in the accounts of facts, or to direct us in the treatment of new cases; the following attempt to connect with an important organ many otherwise loose facts, may tend to facilitate the recollection and application of them, and thus abridge the range of inquiry. The number suggested by this view is so great, that there is less difficulty in the collection than in the choice; their relation and order, familiar only to one's own habit of association, may to others at first be obscure; and some of them may be disputed; but the leading ones seem to show that the stomach is the seat of life, disease, and recovery, and the main organ of a complicated system. Many authors, as Vanhelmont, Rega, Bordeu, Lacaze, Barthez, Fouquet, and particularly Mr. Hunter, lean, in their useful writings, to the opinion held in this summary, which was meant as part of heads of lectures on Materia Medica, read in Edinburgh several years ago. The farther application of the doctrine to practice, will probably appear soon.

CHARLES WEBSTER.

By the same Author,

Medicinæ Praxeos Systema, 3 tom.

An Account of the Life and Writings
of Dr. A. Pitcairn.

Facts tending to show the Connexion of the Stomach with Life, Disease, and Remedy.

SUCH simply organized animals as have no visible brain, nerves, lungs, heart, or blood-veffels, and even vegetables, contract and re-a&t on impressions being made on any part of them ; and being cut in pieces, each becomes a living individual. They separate the elements of dead matter which re-unite within them in various and specific proportions, and extend their fibres ; they propagate their kinds whose particles and fibres are arranged into specific forms, as all consolidated fluids are ; they have a preserving and resisting power called vis conservatrix and medicatrix naturæ ; become de-ranged in their functions and structure by

excess, defect, or peculiarity of impression ; recover from various morbid states ; regenerate lost substance ; cease at length to answer impressions, and spontaneously separate into their elements, which form new combinations in nature.

In an animal, which, besides a stomach, the seat of the first assimilation and simple life, has nerves and brain, the medium of sensation and thought, the energy of which is increased by a heart and lungs ; the assimilating, moving, sentient, and thinking powers become parts of one whole, necessary to the action and effect of one another, acting as it were in a circle, modifying and improving the system, in which the smallest puncture producing contractility, pain, and hæmorrhage, seems to shew that life, mind, and heart exist in every point.

Cold-blooded animals, whose circulation is languid, and respiration occasional, live and move for several hours without brain, heart,

heart, or lungs : the heart of a young hot-blooded animal continues its motions for some time after its connexion with the brain is cut off* ; in phthisis pulmonalis there is sometimes scarcely a vestige of lungs left ; some persons have the power of suspending the action of the heart †, and it is sometimes suspended without the will, while the other functions continue entire ‡.

After decollation, it is said, a viper traversed several walks in a garden ; an ostrich continued running in a circular course leading to an accustomed place of refuge ; and a cock impulsively continued its motion towards some grain that had been just presented to it ; a turtle, whose strength, considering its massy shell, must be very great, lives for months without the head § : foetuses have been born alive without brain, cerebellum, or spinal marrow. In dropsy of the

* Whytt. † Gregory. ‡ Hunter. § Redi.

head, nothing has been found but the membranes ; some have lost a considerable part of the brain and recovered ; all the involuntary motions, and even the use of the limbs, have continued a day or two after the spinal marrow has been divided* ; the involuntary ones continue when the senses and brain are locked up in sleep, lethargy, and apoplexy, and in the suspended action of the heart and lungs in syncope. In mania the vigour is often increased and the sensibility diminished, while the contrary is generally observed in indigestion, gout, and nervous diseases, in which the intellect is often unimpaired. The contractility lasts much longer if an animal be killed by destroying its brain than otherwise †; death, occasioned by over-exertion of the muscles, by the electric, carbonic, or azotic fluids, or by the poison of a viper, prevents the muscles

* D'Esault. † Blane.

from becoming rigid, and disposes to a much quicker putrefaction; and the life in vegetables, particularly in their seeds, in a chick before incubation, and in the hibernating animals, as in the swallow, mountain-rat, and dormouse, resists the tendency to putrefaction, and freezing. The brain of a man, in proportion to the weight of his body, is above thirty times heavier than that of a large quadruped, and still more so than that of an amphibious one, as the crocodile, with proportionably less strength. The brain has a small proportion likewise, in long-necked birds, fishes, and insects; and is singularly large in some small animals, as small birds and rats. In the lower animals it is in general spent in nerves on the senses, face, and jaws, as the spinal marrow is in those on the trunk which are large in proportion; and in all animals the axillary and sciatic nerves and blood-vessels, as necessary to strong voluntary motion, are the largest.

The pulp of the brain and nerves has very little contractility. Parts of animals live and grow without nerves; a limb, after its nerve is cut, though it loses its power of voluntary motion and sensation, and, after some time, begins to waste, yet does not putrefy, but retains its contractility, temperature, and circulation; and a wound or fracture in this case heals, though the nerve be not regenerated*. A muscle, as the heart, whose nerves bear no proportion to its bulk and action, cut off, retains its contractility. Paralyzed limbs void of sense or motion, or of both, are sometimes extremely contractile, inflame, suppurate, and heal, as in the case of a blister, which does not so readily happen in a moribund patient; and an obstinate ulcer in the affected side has been known to heal quickly on the attack of hemiplegia.

No animal can exist without a stomach; life has remained even in the perfect ani-

* Monro.

mals independently of almost every other organ; the stomach is the only organ which, as in the zoophytes, the hydatid, the oyster, the polypus, and some other vermes, can be said to exist as an animal by itself; these animals are capable of every muscular motion, and of every living power suited to their mode of existence and the continuance of their kind. Placed in the middle, the stomach is felt to be the centre of every impression on any part of the body or the mind, and the seat of muscular exertion and fatigue. A blow, or the wind of a cannon-ball over the stomach, kills without leaving any mark*; if any of its nerves be cut or itself wounded, the aliment remains unchanged; when healthy it resists, arrests, and reverses the stages of fermentation, sweetens putrid meat, does not suffer from the syphilitic, variolous, viperine or

* Blane.

carbonic poisons, which injure only the bare surface or passages to the nose and lungs. It is the receptacle of food, poison, and medicine, the effects of which on itself are propagated to every other part; it is most subject to disorder, most accessible to remedy, regulating, and regulated by, the motions and sensations of the whole system, and so accommodating itself as to keep all the parts in balance. *Languido ventriculo omnia languent, vegeto vigent.* In most cases it is the first organ that feels, and the last that fails*. Even the state of the mind or character seems connected with it, vigorous and ferocious animals being generally carnivorous, with muscular vigour in proportion to their voracity. It seems to be the centre of power and motion from which the vital principle, whatever it be, is determined into the different parts, supporting the in-

* There is generally a discharge of fæces after death,

herent power in the moving fibres, the thinking power in the brain, sensation in the sentient extremities, assimilation in the lymphatic*, sanguiferous, and glandular vessels, and the fulness in every part of the system.

When the gastric energy is diminished, parts seem to lose their motion and sense as they are distant from the stomach; as the tips of the nose and ears, the fingers and toes, and the vascular extremities. Like the senses, it has specific sensations, as of hunger, thirst, satiety, longing, loathing,

* From fishes living and growing in distilled water and air †, from the instances of people living so long in disease and in health, without nourishment by the mouth, and from the relief of thirst and even hunger, by the application of water to the skin, water and air seem to be not only absorbed and carried, but assimilated by the lymphatics.

† Fordyce.

fickness,

sickness, peculiar pain, with a great variety of nameless states without sensation, accompanied with corresponding changes, according to predisposition in different parts of the system. A grain of a tasteless substance will affect the stomach, and, through it, the other parts, or these only, while various acrids, pungent aromatics, and spirits, can often be taken in large quantity, without producing any remarkable effect whatever. Stones of considerable size have been swallowed, and the stomach itself, though, from its organic contractility, it is always full, can be in very different states of distension and contraction, with even morbid tumor, without much inconvenience. Leidenfrost mentions a case, in which the application of warm wine to the villous coat of a wounded intestine excited great motion without any pain, even on rubbing off the mucus so as to bring blood. There is often little or no pain felt in the action of

violent

violent vomiting or purging, so that living motion does not, even in the perfect animals, imply sensibility.

The alimentary canal, which, on opening a living animal, hardly seems to move, shows, as soon as the other parts die, strongly increased motions, which, like the contractility mentioned above, continue for hours*. In the case of violent death, as that of beheading, the same increased motions, after some short space, with an impetuous spring of blood from the vessels, are remarkable; which motions may, perhaps, independently of the gastric liquor, sometimes occasion those perforations in the stomach observed in such cases, particularly in infants even after natural death; and to some similar state of bowel may be referred the † esuries and priapismus moribundorum. This resisting or reacting power or vis conservatrix and medicatrix, in which the

* Caldani and Fontana. † In Scotland this is called earth or yerd-hunger,

power of recovery seems to reside, is evident in the case of other impressions on the stomach, the surface, and the mind, as in the action of an emetic, the glow from the cold bath, and the red suffusion produced by passion ; and it is this which seems chiefly to enable a healthy animal to bear changes and extremes of the ordinary ones, as those of temperature, air, food and drink, motion, sensation, and thought, in a remarkable degree. The powers acting on the system, as heat, air, exercise of body and mind, diet, poison, medicine, and the fluids, tend to increase the power of the stomach, but ultimately, or in excess, to destroy it ; and are called stimulants. When defective they tend to diminish it, and are called sedative, which effect, if of a certain degree, is followed by the reaction or resistance ; and they are then called indirect stimulants. Hence the same natural morbid and salutary impressions may, according to their degree, be sedative

sedative or stimulant. Some impressions, both internal and external, affect it peculiarly, and, through it, different parts of the system. In general, strong impressions excite the resisting power, weak ones seem occasionally to soothe, diminish, or tease it, specific ones produce specific states in it and in different parts of the system, and on these fits of resistance, seem to depend the states of periodical disease.

The stomach is the seat of the first assimilating power, in which the elements of food and drink, of whatever kind and variety, separate, and then unite into the only one combination fit for undergoing the other specific changes, for making the specific impressions, for giving the due distension, and repairing the continual waste; and its spontaneous effort or struggle with local injury, seems to excite that symptomatic fever, or state of vessel which renders the parts of the blood more separable, forming the

the buffy-coat, the inflammatory exudation, the suppuration, and the callus or ossifying arteries, so as to regenerate destroyed parts, fill cavities, and form skin. On its state seems to depend that of the chyle, blood, secretions, every soft and hard fibre, every organ and function of the system, and such is its importance, that it has been emphatically called the animal, the conscience of the body, and even supposed the seat of the soul.*

During ordinary hunger, its power over the muscles is diminished, which state is called weakness; there is a diminished action of the heart and arteries, particularly at their extremities, as appears from the weak and frequent pulse, dryness, paleness, shrinking, and lankness of the surface and features; diminished secretion, as appears from the dry mouth and from the flaccid

* Aristotle, Vanhelmont, Mandeville, Hunter.

breasts of nurses, a less free respiration, yawning, hiccup, weak voice, sensibility to cold, feebleness of mind and peevishness, with various other symptoms in different individuals. This esurient state, like that of other appetites and temporary states of disease, goes off, is apt to change into the loathing or sick state, then returns, becoming irresistible, enabling the stomach to dissolve leather and other indigestible matters; and producing excessive thirst, delirium, and other symptoms.

On the sight of food, the mouth fills with water; and on taking some, the esurient state with its symptoms is removed, the stomach feels comfortable, the muscles and organs, particularly those most fatigued, recover their strength, the circulation is promoted, the secretions flow, the respiration becomes free, the countenance brightens up, serenity and vigour are imparted to body and mind, and the heart opens in benevolence.

During

During this fated state the new impression, as if engrossing the power of the stomach, is apt to induce a chilliness, drowsiness, heat, full pulse and perspiration, the phœnomena of flight fever, and in some, formidable symptoms.

The effects of food, as of every thing else, being relative to the state of the stomach, what is light to one is heavy to another; and a cordial in some states occasions vomiting. A heavy meal oppresses the stomach, and depresses its power over the other parts of the system, often inducing alarming symptoms, which are frequently relieved by a puke, or by spirits or aromatics, increasing the power of the stomach. Alcohol, opium, or carbonic acid tends like a meal, to induce serenity and vigour of body and mind, but if in excess, brings on the ebrious state of stomach, which deranges the functions of both. A trespass in eating or drinking, or any thing which

which from temperament, taste, or association of ideas, happens to disagree with the stomach, is apt instantly to occasion various symptoms *.

What weakness, spasms, pains and aches, stiches, depravations and deprivations of sense and motion, and uneasy feelings of body and mind, does not a little air pent up occasion, and its expulsion instantly relieve? What symptom has not been occasionally referred to indigestion, and what remedy does not fall under the

* Thus a raw cucumber, turnip, or radish, kernels of fruits, mushrooms, bitters, honey, spirits, acids, eggs, shell-fish, absorbent-earth, nitre, anything cold when the body is warm, are apt to occasion indigestion, colic, diarrhoea, cholera, hypochondriasis, hysteria, gout, palpitation, asthma, aphonia, syncope, apoplexy, palsy, epilepsy, tetanus, hæmorrhage, suppression of natural discharges, dropsy, eruption with fever, to renew and exasperate a gleet, a sore, or the pain of a gouty or rheumatic limb.

treatment of it and its effects? What disease is free from some affection of the stomach or canal, and what fever does it not mark in its beginning, its progress, remission, crisis, and cure? The diseases of children are acknowledged to be mostly from the stomach and bowels, and they are known to be cured of alarming symptoms by a puke, a glyster, or a purge. A person feels weak, loses colour and spirits, has headache, giddiness, and shivering, and the predisposed suffer fits of their diseases, without suspecting, as there is no sickness, want of appetite, costiveness, or affection of the stomach, that they proceed from it, till a natural vomiting or looseness, an emetic or cathartic relieve the complaints. Fits, as of asthma, chin-cough, hysteria, and gout, are generally preceded by some affection of the canal, and diminish or go off by the expulsion of air or other matter.

There does not seem to be one symptom or combination of symptoms, but may be produced

produced by something taken into the stomach, and, in the case of poisons, its orifices have been found, on dissection, so constricted as to have prevented the escape of any of the matter.

The effect of poison, like that of food and medicine, is relative to the kind and state of stomach. Cows and hares eat hemlock, hares eat milk-thistle, hogs fatten on henbane, quails on hellebore, and goats on euphorbium: a horse can take more glasses of antimony than would kill an hundred men, a dog more opium than would kill an unaccustomed man, while an ordinary dose of jalap, of nux-vomica, or a few bitter almonds, would convulse and kill him. Bitter almonds kill different kinds of birds likewise, and parsley is poison to parrots. Indeed every animal and vegetable poison is the food of some animal, and notwithstanding this difference of effect, little or no difference of structure in brain, muscle, membrane, and

bone, which form the animal solids, can be perceived.

That the stomach may be in a great variety of states, appears from the organs of sense being capable of such variety in regard to sensation, from causes external or internal. Each taste implies a specific state of organ. Alkaline, acid, sweet, bitter, astringent, acrid, aromatic, and fetid matter excite their respective tastes, which imply states of organ as numerous as the individuals of these classes, with their various combinations.

Some kinds of matter affect different parts of the same organ, and the sensation is propagated to a greater or less distance without any probability of absorption. So an irritation in the lungs is often felt at the epiglottis; in the liver, at the shoulder; in the kidney, at the testicle and thigh; in the bladder, at the end of the glans penis; in the colon, at the navel; in every

part

part of the system at the stomach ; and in the stomach, at every part of the system.

An astringent, at the tip of the tongue, corrugates the whole mouth, and stops sometimes a remote hæmorrhage : a bit of alum dissolving in the mouth, occasions a thrill over the body ; sea-salt is felt chiefly at the point of the tongue, bitter apple at its middle, elaterium and mezereon at its root, and jalap in the gullet. A disagreeable taste, smell, sight, sound, or touch, the tickling of the throat, or coughing, are apt to occasion sickness and vomiting. The mere chewing of tobacco or rhubarb, has occasioned vomiting and purging. Tasteless warm water, an antimonial, or the berries of coriaria myrtifolia, throw the stomach into convulsions.

Belladonna gives a dryness and stricture in the fauces ; mercury or muriated barytes produces salivation ; arsenic sets the teeth on edge, produces gastritis, thirst, black

tongue, subsultus tendinum, and delirium, as in the last stage of typhus, in which fever the stomach, on dissection, is generally found morbidly red. A pin, a bit of cork, nutmeg, or other indigestible matter in the stomach, as if in the lungs, has, till evacuated, occasioned a continual coughing*; and an habitual cough is often suspended during a meal or any sapid impression. *Cicuta* produces giddiness; alcohol, opium, fixed air, lead, and, when the stomach is in a particular state, other things produce intoxication.

Lead produces gastrodynbia, peculiar colic, with constipation, yellow countenance, palsy, chiefly of the supinators and extensors of the fingers, and extensors of the legs, with heat and pain in the palms and soles. Copper occasions delirium with leprous-like spots on the surface. *Digitalis*, after remark-

* *Hildanus, Saunders, Percival.*

ably diminishing the action of the heart and arteries, and promoting absorption and a flow of urine, has been thrown up seemingly intire during the deathful sickness it is apt to occasion. Cantharides occasion strangury and priapism, and sometimes relieve nervous cases of the former;* rhododendron chrysanthemum occasions delirium; stramonium occasions itching, inflammation, eruptions, swellings, tremors, fever, and delirium; secale cornutum diseased (ergot) produces raphania; laurel-water kills every species of animal, and in the quantity of six ounces generally without any previous symptom; an ounce or so allows a reaction, which occasions inflammation, hæmorrhage, and convulsions.

Wepfer mentions a number of patients poisoned with water-hemlock, and affected with pain at the stomach and in the bowels,

* Carmichael Smyth.

grinding of the teeth, hiccup, locked-jaw, difficult respiration, an aspect of horror, convulsions, with the abolition of all the senses, hæmorrhage from the ears, efforts to vomit, body bent back like a bow, and death; after which the belly and head swelled, there was a green foam at the mouth, the orifices of the stomach were found quite closed, and the blood coagulated, as in every violent death, from an internal cause, whereas, from an external one, it remains liquid. In some the symptoms indicated ludicrous, and in others serious turns of mind. In general, the appearance on dissection of animals killed by these or other poisons, or even by external ones, is redness of the stomach, with livid or black spots in it, in the intestines, particularly at the insertion of the ductus choledochus into the duodenum, and in the mesentery. So much do impressions on the surface affect the stomach,

stomach, that Bonnet and others have found these appearances in animals killed by the bite of the viper; and Fontana mentions dogs and cats recovering from the bite, in proportion to the struggle and violence of vomiting. Tobacco-oil applied externally occasions vomiting; and if the surface be bare, it kills. The stomach is found red in hydrophobia, and in other cases connected with affections of that organ. Morgagni and Sproegel could find no redness in rats poisoned by arsenic, or in rabbits that died on taking corrosive sublimate; nor could the Florentine academicians find any change in the solids or fluids of a bull killed by the bite of a viper. Hence poisons may destroy life by diminishing the energy of the stomach beyond the power of reaction.

Emetics.

An emetic induces, even in the strongest, affections of the natural, vital, and animal functions, as a sense of languor, lassitude, weakness, tremors of the limbs and lips; diminished action of the heart and its remotest vessels, as appears from the small, weak, frequent, irregular pulse, paleness and shrinking of the surface, the cutis anserina, and from their effect on hæmorrhages and other discharges; difficult respiration, vertigo, rigors, a sense of weariness, weakness, or pain in the muscles of the back, partial sweating, anxiety at stomach, constriction of the mouth and fauces, salivation, expectoration, flowing of the bile, sickness, colic, vomiting; during which exertion the face and eyes become red, the veins turgid, the pulse strong, the sweat general, and the symptoms, which are those

those of intermittents and of all other stomachic, or what are called constitutional diseases, are relieved. The effects of emetics in incipient fever, phthisis, gout, inflamed testicle, certain dropsies, manias, and other diseases shew the influence of the stomach over every part of the system.

Cathartics.

In the continued identical structure from the gullet to the rectum, the state of one part is apt to affect that of another; so indigestion occasions flatulence, spasms and pains in the intestines, which are often relieved by a medicine on its reaching the stomach; a looseness occasionally relieves a vomiting, and a vomiting relieves a looseness; chewing or smoking tobacco will purge, and a tobacco-injection or glyster will produce all the symptoms of an emetic. A cathartic, though returned by vomiting,

miting, often purges, and a drastic has been known to purge severely, and to prove fatal, when, on dissection, the stomach only was found to be inflamed. Hoffmann mentions a woman in a tertian, who, having taken eight grains of glass of antimony, had violent vomiting and purging during three successive fits, but not in the intervals, that she died in the third fit, that, on dissection, the stomach and upper intestines were found inflamed and covered with gangrenous spots, and that the antimony was retained in the villous coat of the stomach.

Most cathartics, like other matters, are decomposed before they pass the pylorus; those which pass seemingly unchanged, as sulphur, oxyd of mercury, cassia, and rhubarb, are in general gentle in their operation. Scammony and gamboge are apt to disorder the stomach peculiarly; hellebore occasions great anxiety, with a sense of suffocation; colocynth and resinous purgatives

gatives, as jalap, are apt to produce colic; aloes affects the rectum, and the effects of elaterium and iris palustris are felt at the extremities of the arterial system.

Diuretics, Refrigerants, and Sudorifics.

Diuretics, and mere liquids, sometimes excite urine so suddenly, that the ancients imagined a direct communication between the stomach and bladder. A retrograde motion in the lymphatics has been supposed, and ingeniously supported*; but the flow appears to be often analogous to the sudden one of milk from the breasts of nurses, and other sudden secretions. Strangury is a constant symptom of gastritis; and affections of the urinary organs constantly affect the stomach. Digitalis, squill, tobacco, and

* Darwin.

most other diuretics are apt, like other nauseants, to be expectorant or sudorific, and if they be so in a considerable degree, or if they produce vomiting or purging early, they fail to induce that state of stomach which seems necessary to their diuretic operation. Two ounces of any neutral salt is apt to be emetic; an ounce or so, even of alum, to be cathartic; two or three drams to be diuretic; a dram to be refrigerant, and, in a warm temperature, sudorific.

Though our ideas of quantity be gross, yet it cannot be supposed that such minute doses of refrigerants, sudorifics, or antispasmodics, of nitre, an antimonial, ammonia, opium,* or æther, can operate

* In cholera a grain or two of opium often instantly diminishes the bilious vomiting, purging, and secretion, the spasms and pains over the body and the coldness of the extremities. It affects the mind in various ways, occasionally producing and allaying delirium.

by going to every point and pore of the body. Alcohol* and aromatics, as curry, heat in a cold temperature, and cool in a hot one. Cold water is apt to produce heat and sweating, warm water to produce cold and shivering. Ammonia, opium, aromatics, or alcohol induce heat in the cold fit, and diminish it in the hot fit of fever; an emetic or bark prevents both, and what are called refrigerants are apt to increase both.

Tonics.

Any nauseous matter, acid, or air in the stomach, or any disagreeable impression, or the absence of an accustomed one, is apt to induce that state of stomach in which its power over the muscles is diminished, and on which the sense of weakness depends. Such impressions and states being removed, the balance between the stomach and mus-

* A dram instantly steadies every fibre of a tremulous drunkard.

cles is restored; which removal has been called a tonic effect. Acids, astringents, bitters, aromatics, fetids, iron, zinc, copper, or arsenic may remove this state, and consequently its symptoms, as weakness, palsy, tremors, spasm, fever, inflammation, ulcer, gangrene, hæmorrhage and serous discharge, and have been called tonic.

The faulty state of stomach is not always attended with impaired appetite, which may be prurient, irregular, and even excessive; but that, in such cases, the stomach is not in a natural state is evident from the deficient assimilation in phthisis, bulimia, and some moribund cases; and from the morbid one, in chlorosis, worms, and sea-scurvy, in which last the citric-acid taken into the stomach, where it must be changed, seems to counteract the effect of salt meat, cold and moisture on the surface, excess or defect of exercise, and despondence, the usual causes

causes of the disease. The sudden effects of small doses of aromatics, fetids, ammonia, alcohol, æther, or opium, in allaying the sense of weakness, heat, cold, sweating, spasm, pain, and other symptoms all over the body, with depressions of mind; and of the same medicines, and the bark in preventing and arresting ague-fits, show that such symptoms depend on states of stomach, and that these medicines act on the stomach, inducing changes in it, the effects of which are propagated over the system.*

If fever, inflammatory and hæmorrhagic diseases, were affections merely of the

* Tonics as exciting the power of the stomach over every part of the body, and thus promoting life, are antiseptic. Life the great antiseptic in nature, seems to preserve matters even in its neighbourhood, as pus in abscess, blood in aneurism, and water in dropsy; and that this does not depend on the exclusion of air is evident, from putrefaction taking place within the body as soon as life is gone.

heart and blood-vessels; nervous diseases of the brain and nerves; dropsy, and scrophula of the lymphatics; scirrhus of the other glands; ulcers of the skin; dyspnæa and cough of the lungs; rheumatism of the large joints, and gout of the small; jaundice of the ducts of the liver, and diabetes of the kidneys, these would oftener exist together; but being symptoms of states of stomach, and as different states of the same organ cannot exist at the same time, the system is thus not readily overpowered by a confluence of diseases; the same causes induce different symptoms according to predisposition, ; the same remedy answers in various morbid states, and it seems thus that the balance of secretions is established. How often, after death, are morbid states of brain, lungs, and heart, in vain looked for, while the cause of all the symptoms is either invisible or found in

in the stomach, which had not seemed previously to suffer.

Narcotics.

Narcotics seem to induce a state of stomach, which tends to supply the want of necessary impressions, or resist such as are apt to occasion pain or prevent sleep, the natural relief and restorer of the sentient part. If a morbid impression exist, as from acid in the stomach, fordes in the bowels, or fulness in the vessels ; or if it be of a mechanical or chemical nature in any other part, it must be removed ; or if it be from a lacerated nerve, this must be divided, otherwise narcotics may not operate, or may even aggravate the symptoms. It is the state produced by the impression, as the painful state of nerve ; muscular spasm ; or local inflammation, as from bruises or wounds ; ulcer ; or disposition to gangrene,

as in the toes *, that narcotics and medicines used in such cases affect, and that only by keeping the assimilating and resisting powers, and thereby the other functions in a proper state, till the morbid impression lose its power, and the morbid state, disposition, and habit cease.

While every part continues under the dominion of the stomach, no mechanical or chemical change of a morbid nature can take place in the solids or fluids of the system ; and from the natural accommodation between the stomach and other parts constantly tending to a level, and forming an equally, though sometimes slenderly, balanced constitution, morbid impressions are often resisted, local complaints arising in the course of disease become tolerable, and changes and extremes of the ordinary impressions, which are all first felt at the

* Pott.

stomach, can be borne in a remarkable degree; but when the balance between the stomach and other parts, by means of internal or external impressions, or evacuations, is diminished or lost, as in an ill or broken constitution, a slight change in ordinary, morbid, or salutary impressions, is felt.

The stomach may be put into a state more or less susceptible of a particular impression. Mercury, whether administered internally or externally, seems to render it more sensible to that of the bark in ague, of squill in dropsy, of opium in syphilis, and of electricity in various diseases. In mania the stomach and system are generally very insensible to impressions; but opium given an hour or two before even an ordinary dose of an emetic, promotes its operation, though in a combined state, as in Dover's Powder, their specific effects are usually diminished. In mania, reason is generally observed to re-

turn in proportion to this sensibility of the stomach.

Impressions differ not only in kind, but in degree, and are powerful, being less resisted, as they are sudden. Strong ones, as emetics, warm water, &c. act chiefly on the stomach, while weak ones, such as do not even nauseate, and have little sensible quality, as small doses of emetics, warm water, absorbents, sarsaparilla, entire mustard-seed, and oxyds, affect the remotest parts, and are much used in indigestion, nervous diseases, passive discharges, and ulcers. A remedy or dose to the unaccustomed, operates like an unexpected blow or event, with proportional force; a strong impression on the surface affects the part chiefly, while tickling, a scratch, dentition, a transplanted tooth, and other seemingly weak, but peculiar impressions, affect the stomach and system considerably.

External Impressions.

Impressions on the senses affect the stomach. A disagreeable taste, smell, sound, or touch, is apt to occasion sickness and shivering, to set the teeth on edge, or to make the mouth water. The smell of spirits sickens and intoxicates* ; smells agreeable to some, make others sick, faint, and suffer abortion ; while fetid ones sometimes recover people from sickness, syncope, or hysteria. Certain motions, as that of a swing, ship, or carriage ; going backwards, turning round, and, in cases of ill-health, the posture of standing, or even sitting, occasions sickness, while that of lying prevents it and syncope. Agreeable sensations often relieve sickness and promote digestion ; but in excess, injure the stomach exceedingly.

* It is said that a little in the stomach prevents the intoxicating effect of the smell.

Emotions are felt at the stomach. The modifications of aversion, as fear, anger, shame, and grief, instantly impair the keenest appetite, and are apt to occasion sickness, tremors, paleness, flushings, weeping, various nervous affections, looseness, and jaundice. One is sick at the thought of anything disagreeable; and an injury is properly enough said to stick in the stomach; which word itself in many languages implies anger and other states of mind. The modifications of desire, as hope, complacence, and joy, improve the appetite and promote digestion and strength. The thought of any thing agreeable does one's heart good; which common phrase, like that of sick at heart, refers to the stomach, as the word bowels does to the kindly affections. Agreeable emotions in excess are apt to produce mania and other disorders, and have been suddenly fatal. While the mind is much struck, or fixed, as in thought, passion,

passion, affection, or mania, the sensibility is diminished to other impressions, as that of spirits, medicines, contagion, and temperature; and fits of various diseases are thus suspended.

There is a great analogy between the internal surface, from the mouth to the anus, and the external one*, both being continuous, pervious to fluids by vessels, quickly regenerating lost substance, covered with mucous or sebaceous matter defending the tender surfaces, liable to abrasion, inflammation, thickening, and probably the same eruptive and other diseases, the state of the one affecting or alternating with that of the other. Perhaps the growth of hair after death, shews some continuance of life in the skin.

As a strong dose, it was observed, chiefly affects the stomach, so a strong

* Monro, Jackson.

impression, as pinching, affects chiefly the part; tickling affects the whole system, occasioning itching and laughter, and if continued, weakness, sickness, vomiting, and convulsions. Gentle pinching and friction are prevailing eastern customs, and exercise is universally so, for promoting digestion. A large bleeding sickens, and small ones are commended in many cases; compression allays vomiting and colic; a plaster, by giving support to the muscles of the back, seems sometimes to steady the stomach and system; and the want of usual compression, as that of a neck-cloth, stays, or garters, is apt to produce sickness and other uneasy feelings.

Scrophulous-like tumors in the neck have been attributed to compression of the inguinal glands by a truss; and various diseases to that of the feet and other parts. Peculiar impressions, or slight impressions in peculiar states, produce peculiar symptoms.

toms. A scratch produces in some, swelled glands ; in others tetanus*, with a state of stomach attended with pain, and which has borne fifteen hundred grains of good opium in six days, without sleep, or any affection of the head or mind. An old and obstinate epilepsy, it is said, has ceased to return after the extirpation of a wart from the surface. Dentition produces vomiting, purging, eruptions, fever, and convulsions. A transplanted tooth has produced appearances of syphilis or scrophula, cured both with and without mercury. A wound

* This occurs particularly in warm climates, where there is little disposition to inflammation. The application of a stimulant, as turpentine, to the part exciting proper inflammation and suppuration, has been found to prevent tetanus ; and mercury is probably useful in it and some other cases, by inducing that state of stomach and vessel which has been called phlogistic ; in which the parts of the blood are in that separable state, fit for forming a proper suppuration.

gradually,

gradually, according to its seat or extent, affects the stomach, as appears from the indigestion, foul tongue, and fever, inducing, as in pregnancy for the fœtus, that state of vessel necessary to form the buffy-coat, and instead of blood, that suppuration, so remarkably under the influence of diet; and during which the state of stomach is sometimes such, that solid meat has suddenly produced great weakness, with dyspnæa, delirium, and convulsions, ending in death; and the suppulsive or hectic state, if it does not heal, teases, wastes, and destroys. In pregnancy the state of stomach is peculiar, seemingly necessary to the retention of the fœtus; and may be the cause of its resisting contagion, and arresting the symptoms of phthisis. A state of vessel that teases the stomach and system, is often taken off by a spontaneous hæmorrhage or inflammation effected by an effort

effort of the stomach, which a bleeding or a blister could not allay.

The elements of food and drink in forming chyle, blood, secretions, and solid parts; and the base of vital air uniting with these by the lungs, and perhaps by the surface, may give the blood its colour, its temperature, its mobility, its coagulability, its power of acting on the left ventricle with those appearances of vitality ascribed to it by Mr. Hunter; and these condensations going on less in a warm temperature, and more in a cold one, may by the accommodating nature of the stomach with the other parts, preserve the equilibrium of heat in the system.

That temperature on the surface affects the stomach, is evident from certain applications of cold exciting vomiting and purging; from hot applications, or a hot fit relieving those vomitings which occur in fever and the plague; and from changes of temperature

temperature inducing or relieving various diseases, and fits of disease of which the stomach is the seat*. A warm fomentation relieves the sense of heat, handling snow occasions it, an irritation as from a thorn produces it, and an irritation in the stomach occasions alternations of heat and cold. Human heat is between 32° and 156° , the two coagulating points; and the agreeable is, exclusively of habit, between 32° and the human heat. In tropical and polar climates the appetite is keen, and the stomach resists the power of intoxicating liquors and of contagion. Seeds, eggs, imperfect and young animals and maniacs, being, as it were, all stomach, bear the effects of heat and cold remarkably.

Certain degrees of heat and cold dispose

* Mr. Farquhar mentions a patient, who, since the use of ice for burns, has continued free for a considerable time from hysterical complaints of long standing.

to sleep; which, in the case of cold, or of external and internal poison, subduing the power of the stomach, is apt to prove fatal. From the long fasting that is borne in sleep, the slow operation of a medicine, and the suspension of stools, the stomach seems less sensible in that state; the temperature is two degrees less; and cold is easily caught in sleep. If appetite or sleep pass its periods, the disposition ceases, and its return is the first symptom of crisis in fever. Dyspeptics are apt to start from sleep or the article of sleep, and then other nervous affections, as asthma, palpitation, epilepsy, and gout, are apt to happen, probably from the change in the state of the stomach. It seems to be only in occasional states of stomach that fits from fixed causes, and other periodical diseases, occur.

Friction, fomentations, aromatics, fetids, acrids, spirits, ammonia, æther, and opium allay vomiting and internal spasms, prove

prove cathartic, or favour the operation of one. In people with whose stomachs honey, unctuous matter, or eggs disagree, any application of these or of wax to a sore, has been observed likewise to disagree. Tartite or muriate of antimony applied externally, as if taken into the stomach, excite vomiting, purging, and sweating. Lead, copper, mercury, and other impressions, produce vomiting and purging. It is said that bitters expel worms, that opium and tobacco produce ebriety, that bark cures ague, and that opium applied to the bare surface has destroyed life without being absorbed. Ammonia weakened with oil, so as to be applied to the surface, frequently produces nausea and an universal sweat. Some saps so applied, seem to affect the sense of taste without reaching it. Arsenic, the bite of a viper, or of a mad-dog, has produced death; and, on dissection,

tion, the stomach only has been found inflamed.

The state of the tongue and mouth is always attended to as a mark of the state of stomach, according to which the sensations of taste are various, and the saliva and mucus vary in quantity, consistence, taste, smell, and colour. Hence wateriness, ptyalism, salivation, or foaming, is apt to occur on the sight of grateful food in indigestion, pyrosis, pregnancy, hydrophobia, epilepsy, scurvy, fever, and small-pox; the first symptom of which last is pain at stomach, and the chief remedy cold to the surface. Lead, antimony, barytes*, fox-glove, opium, or the guatimala serpent, as well as mercury, excite salivation, which is promoted by a nauseant or emetic, or by different degrees of temperature. A grain or two of a mer-

* Crawford.

curial in the stomach, or on the bare skin, has had the effect; the salivation, like a gleet or mercurial fore, will sometimes continue for months; and when suddenly stopt, is apt to be followed by a violent affection of stomach, with vomiting, only to be allayed by mercury*.

If infection be removed before the specific state of stomach and vessel be induced, disease does not take place; and the morbid state itself may, in the case of syphilis, be removed, for a time at least, by copper, or by a course of corrosive sublimate, or by fever, while the disposition may remain, and break out with or without virulence.

Such is the sensibility of the skin as well as stomach, that a cold or hot body, or an astringent applied to either, is apt to produce a contraction over all, and stop some haemorrhages. Fantonus mentions a man

* Lond. Med. Obs. & Inq. vol. iii. p. 246.

in a fever, in whom blister-issues that had dried up, opened and discharged anew, after the application of other blisters to distant parts. A plaster on some skins excites an eruption in other parts. After a suppuration in the fore-arm, a swelling has taken place successively in the arm-pit, the parotid, the leg, the knee, and the groin. A swelled testicle is allowed to be merely from irritation. A succession of tumors takes place in the conglobate glands from the mesentery to the neck, and likewise from a compression of the inguinal glands; in the inguinal and axillary from irritation at the toes and fingers, with or without infection; and in the neck and behind the ears from a scratch, a blister, or tinea capitis in the neighbourhood. The pain of a wound, burn, or bruise, is sometimes alleviated as pain begins in another part. Pain, spasm, inflammation,

mation, and other states are apt to shift, as are ulcers, that is peculiar states of vessel with peculiar assimilation as the ichor of cancer, the cheesy-like matter of scrofula, and the stony matter of gout.

Noxious matter seems either rejected by the absorbents at the surface, or assimilated before it meet the chyle in the thoracic duct. A mild substance like milk or mucilage injected into a vein, is apt to throw the system into convulsions. The flesh of an animal killed by a poisonous bite or arrow, affords wholesome food; during a course of chalybeates no superfluous iron is detected in the chyle or blood; bile circulating in jaundice does not produce giddiness, dimness of sight, &c. as when in the stomach; colouring and odorous particles, as of madder, logwood, turpentine, garlic, or asparagus, circulate without producing any effect; in syphilis the fluids, and even secondary ulcers do not generally infect; and though

though a mercurial may lose, and sulphur acquire oxygen in the system, yet it is not alleged that either is found there but in its mild state.

A morbid state or a fever, attended with inflammation, eruption or ulcer, often takes place suddenly, and runs its course without any infection, applied or generated, or any cause or remedy which acts on the fluids ; in the case of infection the symptoms, as the variolous eruption, sometimes do not appear, and sometimes continue to appear when the state or the fever is gone ; and are affected by external temperature, while the internal one continues the same ; some very infectious diseases, as the yaws, admit of cure from mere attention to the general health ; an infectious irritation, like others, takes time before it affects the resisting and assimilating power, so as to produce the specific state of vessel and specific matter ; during the variolous and sy-

philitic state, though there is nothing to prevent absorption, any new infection seems to have no constitutional effect ; in the case of small-pox, yaws, and some other infections, the system becomes afterwards insusceptible of their action, as it, in some measure, does of that of accustomed ones, as spirits, opium, tobacco, and even febrile contagion ; and no satisfying account is given why the absorption, multiplication, or assimilation, with the other effects of an infectious particle are not more immediate, and in proportion to its quantity, and why after absorption, it should in any case fail to assimilate.

Morbific matter does not seem to be a cause of gout or of other diseases, called hereditary, as mania, epilepsy, or scrofula, which are not infectious, and in which, as in all other cases, the state of the fluids must depend on that of the solids. Gout often attacks persons in seemingly good health preceded perhaps

perhaps only by slight symptoms of some affection of the alimentary canal, is subject to frequent, sudden, and distant translations, affecting the joints with inflammation, but the stomach with a state so opposite, that highly stimulating cordials are taken with relief; and no antidote to gouty matter there, whether supposed acid or otherwise acrimonious, was ever thought of.

The remedies in syphilis tend to bring the stomach and consequently the vessels from their syphilitic state, and to keep the functions in a proper condition till the impression cease to operate, the morbid state be changed, and the habit overcome. The remedies affect the assimilating organs, and except perhaps the corrosive sublimate, improve them, as appears from the corpulence to which they dispose. Infants have remarkably assimilating and resisting powers, slaver a great deal, are not easily affected by syphilis, or easily salivated by mercury, and

are

are easily cured. Mercury, and opium when it succeeds, seem to put the stomach in a peculiar state, somewhat, perhaps, like that of infancy, and the salivation does not appear to be from absorption any more than when it occurs from an emetic, pregnancy, or worms; or than giddiness is when it arises from the use of hemlock.

Inflammation by mustard, &c. does not excite strangury, as cantharides are apt to do. It often ceases the moment the blister is removed, the effect of the impression is allayed by a poultice, or the stomach is soothed by a diluent, or by camphorated oil applied to the surface. Cantharides internally relieve paralytic strangury, and incontinence of urine; strangury frequently occurs from affections of the stomach, as gastritis; and the uva ursi, alkali, or super-carbonated alkali, whose effects seem chiefly confined to the stomach, occasionally relieve even fits of the stone.

Contagions, whether marshy, human, or specific, are sometimes traced to smells, as a cadaverous one, a heavy earthy one, that of the confluent small-pox, dysenteric stools; or they may induce the febrile state, the only steady character of which is weakness, though the impression do not just excite the state of sensation. It may be in a way similar to what happens in idiosyncrasies in regard to cheese, a cat, &c. or that of the insensible action of various irritations, as of worms. A gentleman who cannot bear being in a room where there is any cheese, though he does not see or smell it in the least, instantly feels a sense of weakness, after some time, sickness with a cold sweat, and faints if he endeavour to brave it. In this way contagion may, through the organ of smell, affect the stomach and system. Inoculated, it produces the specific state, inflammation and suppuration, and in the case of small-pox without

without predisposition, the stomach does not yield too much, and its energy is kept up by cold on the surface, so that a slight eruption happens sometimes without fever. Heat on a part seems to increase the various state of vessel. Cool air on the surface recovers persons from the state induced by carbonic, azotic, and other noxious airs, the first symptom of which is vomiting ; from syncope, and from the still-born state, the first exertion from which is seen to be about the region of the stomach ; and the cold seems to operate, as in discharges of blood, by exciting the stomach from its passive state. Affections of the stomach, as observed, mark fever in its attack, progress, remission, crisis, and cure ; all its causes affect the stomach ; it has no symptom but what an immediate application to the stomach may produce and its evacuation remove ; and it is often prevented and cured by remedies affecting only that organ.

Its

Its forms of intermittent, remittent, continual, yellow, biliary, and dysenteric, seem all related, prevailing at the same time, changing their types, and running into one another ; and the late observations, made in different climates, tend to show that the same treatment, properly timed, answers equally with them all.

THE END.

